



### The wonderous fruit-dragon fruit & its health benefits

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#### Abstract

Dragon fruit is a perennial, epiphytic tropical climbing cactus with a triangular fleshy jointed stems which belongs to family Cactaceae and of genus *Hylocereus*. It is considered as a heavenly fruit on the earth. The flower is so beautiful that its nick name is Novel woman" or "Queen of the night". It is also used as flavouring agent in drinks, juices and alcoholic beverages sorbet, smoothie and pastries. They are consumed either as fresh fruits or in salads, for production of jam, jelly, ice-cream, juice, wine, face-packs etc. Dragon fruit is rich in various nutrients, vitamins and minerals and accordingly owing high medicinal values, it is believed to be able to lower cholesterol concentration, to balance blood sugar concentration, to prevent colon cancer, to strengthen kidney function and bone, to strengthen the brain workings and even used as cosmetic ingredients.

**Keywords:** dragon fruit, Nutritive value, health benefits

#### Introduction

Dragon fruit is a perennial, epiphytic tropical climbing cactus with a triangular fleshy jointed stems which belongs to family Cactaceae and of genus *Hylocereus* [1]. There are three species of dragon fruit which include *Selenicereus megalanthus* (white flesh with yellow peel dragon fruit), *Hylocereus undatus* (white-flesh with red peel dragon fruit) and *Hylocereus polyrhizus* (redflesh with red peel dragon fruit). *Hylocereus undatus* is the most cultivated and consumed species of dragon fruit [3].

The dragon fruit features a mouthwatering light sweet taste, an intense shape, color, and not forgetting its outstanding flowers. The flower is so beautiful that its nick name is "Novel woman" or "Queen of the night" [2]. The dragon fruit is eaten by cutting the fruit and its texture is sometimes likened compared to that of the kiwifruit due to the presence of black, crunchy seeds. The flesh, which is eaten raw, is mildly sweet and low in calories. Seeds are eaten together with the flesh, have a nutty taste and are rich in lipids [5].

Dragon fruit or Pitahaya (*Hylocereus undatus*) also known as "The Wonderous Fruit" of the 21st century belongs to Cactaceae family and is known to be originally native to a region including Mexico, Guatemala, Nicaragua, Costa Rica, El Salvador and northern South America. Its cultivation is widespread in Southeast Asia, Florida, the Caribbean and subtropical world region. Although it is commercially cultivated in other countries, it has not attained commercial cultivation status in India. It is one of the newly emerged fruit crop in India [4].

It is also well established new crop in China, Malaysia, Taiwan, Australia, Vietnam due to its least care requirement for its cultivation and minimal attack of pest and diseases. The biggest achievement of this crop is that once planted, it will grow for about 20 years, and 1 hectare could accommodate about 800 dragon fruit plants.

The dragon fruit was introduced in India late 90s. But the area under dragon fruit is still very limited. In India, it is cultivated on very limited scale. A very few farmers of Karnataka, Kerala, Tamil Nadu, Maharashtra, Gujarat and Andhra Pradesh have taken up dragon fruit cultivation. The total area under dragon fruit cultivation is less than 100 acres [6].

The dragon fruit is oblong to oval, to 6–12 cm long, 4–9 cm thick, mostly red with large bracteoles. It has thin, leathery rind with sweet flavoured white or red pulp inside. Very small, black coloured edible seeds are embedded in the pulp (*Hylocereus undatus*) [7]. The average weight of a dragon fruit is around 350 g. The best climate condition for dragon fruit plantation is dry, tropical or subtropical with annual rainfall ranges from 20-50" per year [8]. The dragon fruit sets on the cactus-like trees 30–50 days after flowering and can sometimes have 5-6 cycles of harvests per year [7].

Dragon fruit or Pitahaya can be grown as an ornamental crop as well as for consumptions. It is also used as flavouring agent in drinks, juices and alcoholic beverages sorbet, smoothie and pastries. They are consumed either as fresh fruits or in salads, for production of jam, jelly, ice-cream, juice, wine, face-packs etc. Unopened flower buds are cooked and eaten as vegetables. Fruit peel is used for extracting natural colouring agent, as well as natural source of pectin. Fresh and dried dragon fruit skin both are rich in pectins and betalains making it natural food thickener and natural colouring agent [7].

Nutritional value and health benefits of dragon fruit Information about a nutritional value of red-skinned and white fleshed dragon fruit (*Hylocereus undatus*) has been provided per 100 grams are Water (87 g), Protein(1.1 g), Fat(0.4 g), Carbohydrates(11.0 g) Fiber(3g), Vitamin B1 (Thiamine)(0.04 mg), Vitamin B2 (Riboflavin)(0.05 mg), Vitamin B3 (Niacin)(0.16 mg), Vitamin

C (20.5 mg), Calcium(8.5 mg), Iron(1.9 mg), Phosphorus(22.5 mg)<sup>[9]</sup>.

Pitaya is an important source of phytochemicals such as polyphenols, flavonoid and vitamin C which are related antioxidant activity<sup>[11]</sup>. Especially the red and white pitaya have recently drawn growing attention worldwide not only because of their economic values but also their health benefits<sup>[10]</sup>.

Dragon fruit is considered as a heavenly fruit on the earth with high nutritive and medicinal values. It is considered to lower blood sugars in type 2 diabetes. Dragon fruit is believed to able to lower cholesterol concentration, to balance blood sugar concentration, to prevent colon cancer, to strengthen kidney function and bone, to strengthen the brain workings<sup>[15]</sup>.

The flesh has a nice texture with tiny seeds all over, just like kiwi fruits. But do not be put by these tiny seeds as there are edible and nutritional. The seeds contain natural oils and fatty acids in the form of linoleic acid and oleic acid (Omega-3 and Omega-9), which are useful for your cardiovascular health<sup>[12]</sup>.

Regular consumption of Dragon fruit helps in fighting against cough and asthma; also it helps for healing wounds and cuts quickly due to it contains high amount of vitamin C. The high level of vitamin C found in Dragon fruit plays an important role to enhance immune system and also to stimulate the activity of other antioxidant in the body.

Dragon fruit is also packed with B vitamin group (B1, B2 and B3) which possess an important role in health benefit. Vitamin B1 helps in increasing energy production and in carbohydrate metabolism, Vitamin B2 in Dragon Fruit acts as a multivitamin, it aids to improve and recover the loss of appetite. And Vitamin B3 present in dragon fruit plays an important role in lowering bad cholesterol levels; it provides smooth and moisturizes skin appearance<sup>[13]</sup>.

Dragon fruits are also packed with minerals such as calcium for stronger bones and teeth, phosphorus for tissue formation, and iron for blood health and energy. Dragon fruit contains phytoalbumins, which have antioxidant properties that are known to aid in the prevention of the formation of cancer by helping our body to fight free radicals that cause cell damage.<sup>[14]</sup> Dragon fruit is that it contains a substance called lycopene, which is said to help prevent prostate cancer according to research.<sup>[5]</sup>

**Cosmetic Use:** Dragon fruit is integrated with several skin youthful elements like vitamin C and mineral like phosphorus, which has several beneficial functions in our body. As it is found in every cell, it potentially repairs the tissue and cells which are indispensable for the youthfulness of skin, slow down a premature aging process and prevents from aging. It is also helpful in treating age- related acne problems. Therefore, it is emerging raw material in a cosmetic industry<sup>[9]</sup>.

### Conclusion

Dragon fruit is gaining popularity in India as a nutritious and medicinal fruit. It is suitable for cultivation in the region having a dry spell of weather with supplementary irrigation. It is considered to lower blood sugars in type 2 diabetes. Dragon fruit is rich in nutrients like vitamin C, B1, B2, B3, high fibre content, minerals like Ca, Fe, P, less carbohydrates and no fats, seeds rich in essential fatty acids namely, linoleic acid and linolenic acid all these factors are rendering that has various benefits. Eating fruit is considered beneficial for carbohydrate metabolism,

strengthening bones and teeth, heart tissues, healthy blood, and tissue formation and also used as cosmetic ingredients.

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