

Jackfruit an immense valuable fruit crop

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Introduction:

Jackfruit is botanically known as *Artocarpus heterophyllus* which belongs to the family Moraceae. It is native to the forests of the Western Ghats (India), where it still grows in the wild, as well as in the evergreen forests of Assam and Myanmar. The world's biggest edible fruit, jackfruit is known to have a wealth of nutrients, including proteins, carbohydrates, vitamins, minerals, and phytochemicals. It is the national fruit of Bangladesh and grown extensively across the wetland tropics for its robust wood and huge fruits. At maturity, the jackfruit tree reaches a height of 15 to 20 m (50 to 70 feet) and has enormous, stiff, glossy green leaves that are 15 to 20 cm (6 to 8 inches) in length. The plant is monoecious with cauliflorous bearing habit. Spikes on the male and female are borne independently on short, robust stems that emerge from the trunk and older branches. On younger branches, male spikes are located above female spikes. Male spikes may grow up to 10 cm (4 in) in length, are thick, meaty, and have a cylindrical to club form. When young, flowers are small and light green; as

they become older, they get darker. The calyx of female flowers is tubular, round, elliptic, and bigger. It is chiefly pollinated by insects and wind, with a high percentage of cross pollination. At up to 60 cm (about 2 ft) in length and up to 18 kg (approximately 40 pounds), jackfruit is the biggest fruit that grows on trees worldwide. Larger fruits weighing about 50 kg have been documented. It is ellipsoidal and aggregate, with many "bulbs" of flesh bearing seeds around a stringy centre, all encased in a rough rind.



India is regarded as the jackfruit homeland and is the world's second-largest grower of the fruit. Jackfruit is widely distributed across India, including the South

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Indian states of Kerala, Tamil Nadu, and Karnataka, the Himalayan foothills, Assam, Tripura, Bihar, West Bengal and Uttar Pradesh. It is an excellent addition to border or wind barrier plantings because of its strong wind tolerance. The thick canopy of jackfruit may act as a visual screen and is quite decorative in residential gardens. The tree is particularly well-known for its resilient wood, which has termite-repelling qualities and matures to an orange or reddish brown colour. Goats, pigs, and cattle may use the leaves and fruit debris as good feed. Due to its high vitamin, mineral, and calorie content, the matured fruit plays a major role in the nutrition of lower-class households. In the past, one of the regular meals for the impoverished in the jackfruit-growing region was this fruit rather than rice. As a result, it's sometimes called "the poor man's food."

In the warm, humid environment of the hill slopes and the hot, humid climate of the plains, jackfruit flourishes and produces well. It needs wet, well-drained soil with a pH range of 4.3 to 8.0 and medium soil fertility. The ideal temperature range is 19 to 29° , with a height of around 1600 metres above sea level and an annual rainfall of 1000 to 2400 millimetres. The trees can withstand some salt, but they are not very resistant to drought or floods. Strong, dry winds and exposed areas are bad for the tree's health. Growth

characteristics vary depending on soil type, location, and cultivar; they might be tall and straight with a thin trunk or short with a thick trunk.

Fruit ripens 7-8 months after blossoming. A tree's age, irrigation, and annual rainfall may all affect how many fruits it yields. Older trees may yield as many as 500 fruits. A hollow sound is observed when tapped, a colour shift in the skin, an increase in odour, and flattening of the spines are all signs of harvest. Mature at harvest affects fruit quality and shelf life. Fruit should be picked every day since its shelf life is just two to three days. As a vegetable, tender green fruit is used. For dessert, fresh ripe fruit is eaten with its delicious pulp. The seeds may be fried, roasted, or boiled and consumed. Seeds are rich source of starch. Flour can be made from it, which has a huge scope in the bakery

products. Other industrial applications for jackfruit include jams, drinks, sweets, preserves, and dehydrated forms.

Seeds are recalcitrant and may be kept in cold, humid environments for up to one month. The seeds have a thin, white membrane covering them, and they are spherical, light brown, and measure 2-3 cm (0.8-1.2 in) in length by 1-1.5 cm (0.4-0.6 in) in diameter. A thin, parchment-like, waxy testa (husk) and a brownish, membrane tegmen make up the seed coat which can be easily removed.

Nutrient composition of jackfruit (100 g edible portion)

Nutrients	Young fruit	Ripe fruit	Seed
Water (g)	76.2—85.2	72.0—94.0	51.0—64.50
Protein (g)	2.00—2.60	1.20—1.90	0.40—0.43
Fat (g)	0.10—0.60	0.10—0.40	0.40—0.43
Carbohydrate (g)	9.40—11.5	16.0—25.4	25.8—38.4
Fiber (g)	2.60—3.60	1.0—1.50	1.0—1.50
Sugar (g)	-	20.6	-
Minerals (g)	0.90	0.87—0.90	0.90—1.20
Calcium (mg)	30.0—73.2	20.0—37.0	50.0
Magnesium (mg)	-	27.0	54.0
Phosphorus (mg)	20.0—57.2	38.0—41.0	38.0—97.0
Potassium (mg)	287—323	191—407	246
Sodium (mg)	3.00—35.0	2.0—41.0	63.2
Iron (mg)	0.40—1.90	0.50—1.10	1.50
Vitamin A (IU)	30	175—540	10.0—17.0
Thiamine (mg)	0.05—0.15	0.03—0.09	0.25
Riboflavin (mg)	0.05—0.20	0.05—0.40	0.11—0.30
Vitamin C (mg)	12.0—14.0	7.00—10.0	11.0

Simple sugars like fructose and sucrose, which offer an almost immediate energy boost, are the reason jackfruit is considered an energy-producing fruit. Jackfruit is a nutritious fruit to eat even if it has a high calorie content and is low in cholesterol and saturated fat. The anti-aging and anti-cancer properties of phytonutrients such as saponins, isoflavones, and lignans are abundant in jackfruit. In addition to slowing down cell deterioration, which may exacerbate degenerative diseases, these phytonutrients may help the body get rid of free radicals, which induce cancer. The high fibre content of jackfruit also helps to facilitate easy bowel movements and lessen constipation.

It has been shown that the potassium in jackfruit helps lower blood pressure, which lowers the risk of heart attack and stroke. The leaves help with skin conditions, wounds, fever, and boils. Young fruits have carminative, astringent, and bitter properties. Ripe fruits provide delicious, cooling, laxative, aphrodisiac, and brain tonic properties. The seeds induce constipation and diuresis. Its seeds may be eaten as a nutritious nut and are high in protein. The substance "Jacalin," which is also present in the fruit, has anti-AIDS, anti-colon cancer, and pro-health properties. The root is a treatment for asthma and skin conditions. When experiencing fever and diarrhoea, an extract of the root is consumed.

Jackfruit leaf ash is used topically to heal ulcers. Artostenone, which is converted to artosterone, and a substance with a noticeable androgenic effect are the products of drying the latex. When combined with vinegar, the latex aids in the healing of glandular swellings, snakebite, and abscesses. Poultices produced from the bark are used. On wounds, heated leaves are applied. The pith of the wood is said to be abortifacient, and it also has calming qualities. An anti-inflammatory drug is latex.

According to recent research, jackfruit may be useful in the treatment of type 2 diabetes. One investigation suggested that adding jackfruit flour to the diets of people with type 2 diabetes greatly improved blood sugar management measures, such as lowering HbA1c and postprandial and fasting glucose levels. Jackfruit flour may be a useful addition to diabetic medical nutrition treatment.

It can be propagated by both sexual and asexual method. Soaking of seeds in gibberellic acid solution one night before sowing improves the germination of the seed. Vegetative methods like epicotyls grafting, inarching, air layering and softwood grafting is also practiced. The commercial method used for its propagation is inarching or approach grafting.

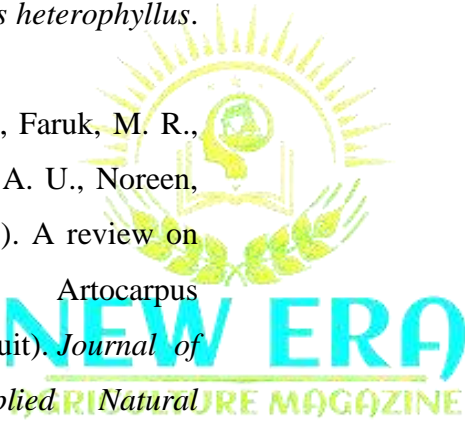
Conclusion

The jackfruit has a lot of uses. It is delicious in a wide range of savoury and sweet

recipes and may be eaten raw, cooked, ripe, or unripe. Owing to jackfruit's purported health advantages, consumption has increased recently. The pulp and seeds of jackfruit are abundant in many high-value chemicals that may have positive health effects. The abundant bioactive composition of jackfruit renders it a very nourishing and coveted fruit crop. It has enormous possibilities for value addition also. Many scientific and commercial interests have surfaced in the last few decades to support and market jackfruit products such as jackolates, jackies, dried raw jackfruit flour, squash, nectar, and RTS, among others. Value addition to jackfruit promotes the fruit among the general public, generating more revenue for stakeholders. Growing efforts by farmers and some non-governmental organizations to promote this fruit, together with new technology, are contributing to a greater public awareness of its production and financial worth.

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