

Review On Exotic Fruits: A Nutritional Check

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Abstract- Exotic fruits are considered as such due to certain unique features they possess and are imported from various native countries they originate from, to other parts of the world. Those are referred to as tropical fruits in some parts. They are highly nutritious and has various therapeutic properties. The mentioned exotic fruits Rambutan, Kiwi fruit, Dragon fruit, Durian fruit, Passion fruit and Avocados are all rich in various macro and micro nutrients. They possess anti-oxidant, anti-diabetic, anti-inflammatory and anticancer properties. They help in cardiac health, hair and skin health, bone health and maintains overall body functions.

Keywords: Exotic fruits, Therapeutic properties, Phytonutrients, Bioactive compounds.

Introduction

The phrase “Exotic fruits” refers to those delicious delicacies of fruits which are originated from a foreign country specifically where there is a tropical climate. Hence the exotic fruits are also known as tropical fruits in some countries. In short these are specific to certain regions of the world and might not be grown worldwide but are imported from those specific parts of the world for other population as well to have a taste of it. In recent times more countries are involved in cultivating these fruits at their own regions so as to reduce the cons involved in importing fruits items.

In these days people are becoming health conscious and are more inclined towards consuming healthier options. Many studies shows that exotic fruits are rich in bioactive components which possess anti-inflammatory and anti-cancer properties and are also rich in various vitamins and minerals. The exotic fruits are also largely celebrated for their luxurious appeal, potential health benefits and rich taste. There are wide ranges of exotic fruits ranging from spiky cactus pear, refreshing kiwi to creamy durian. Some of the exotic fruits includes dragon fruit, lychee, kiwi, durian, rambutan, mangosteen, star fruit, feijoa, longan, kiwano, buddha’s hand, cactus pear, pomelo, ackee and breadfruit.

Rambutan

Rambutan with a taxonomic name *Nephelium lappaceum L.* is a tropical fruit belongs to the family Sapindaceae. The shape ranges from round, oval to spherical which is covered by a leather like outer skin texture along with soft hairy spine like projections (Minh et al., 2019). It is naturally grown in various tropical regions of the South-Eastern parts of Asia which includes countries like Malaysia and Indonesia and are further commercial expanded to countries such as India, Singapore, Thailand, Australia, Congo, Madagascar, Syria and the Philippines among which Malaysia, Thailand and Singapore are biggest cultivators and exporters (Mahmood et al., 2018 and Jahurul., 2020).

The fruit consists of proteins, carbohydrates, vitamins, antioxidants and minerals (Jahurul., 2020). A study shows that rambutan fruits are rich in antioxidants which helps treat diabetes, bacterial infection and helps in reducing cellular damage which in turn helps in reducing the risk of cancer (Sridevi Chigurupati et al., 2019). A 100g of an edible rambutan fruit consists of 13.9g - 20.87g of carbohydrates, 0.65g-1.05g of protein, 0.21g of fat, 38.6mg – 70mg of Vitamin C, 11mg of sodium, 7mg of Manganese, 140mg of Potassium, 0.1mg – 25mg of Iron, 9mg – 30mg of Phosphorus, 22mg of Calcium and 0.3g – 2.8g of fiber (Gursimran Kaur., 2022). The consumption of rambutan fruits helps to enhance heart, bone, digestive, skin, scalp and hair health. It also aids and preventing high blood pressure. It also has anti-cancer, anti-obesity, anti-hypercholesterolemia and aphrodisiac properties (Wenli Sun., 2020).

Kiwi Fruit

Actinidia deliciosa (kiwi) is an oval shaped fruit which is sometimes referred to as Chinese gooseberry. It has a furry thin greenish brown colour skin with a mesocarp flesh being green in colour with purple-black seeds which has a sweet and tangy flavour. It grows abundantly in temperate areas the latitude falls between 25 °C and 45 °C. It is originated from the Yangtze Valley of China and in 1900s it was widely cultivated in New Zealand (T.Pinto., 2018 and Barnkob L et al., 2020). Various studies shows that 100g of fresh kiwi fruit contains 17.5g of carbohydrates, 0.79g of protein, 0.07g of fat, 0.027mg, 0.025mg, 0.341mg, 0.183mg, 0.063mg of Vitamin B1, B2, B3, B4, B5 and B6 respectively, 92.7mg of Vitamin C, 87IU of Vitamin A, 1.47 mg of Vitamin E, 40.3 µg of Vitamin K, 34mg of Calcium, 17mg of magnesium, 0.31mg of Iron, 34mg of phosphorous, 0.13mg of copper and 0.14mg of zinc.

The kiwifruits are rich in actinidin which is a proteolytic enzyme that aids in digestion of proteins. It has cardio protective factors due to the presence of anti-platelets factor in turn prevents cardio vascular diseases. The fiber present in the fruit helps in reducing the blood cholesterol levels. Also the levels of triglycerides in the blood is reduced due to the presence of protective polyphenols, potassium, vitamin C and vitamin E. The presence of vitamin K and amino acid such as arginine and glutamate helps to prevent blood clotting as the amino acids present helps in improving the blood flow and dilate the blood vessels. It also shows some laxative properties showing softer or looser stools with greater bulk. The presence of Omega 3 fatty acids locks moisture in the hair, copper prevents premature graying and vitamin C prevents hair fall. In addition, it also has anti-inflammatory, anti-microbial and anti-diabetic properties (**Richardson, D. P et al., 2018, Ishida et al., 2021 and Rhythm Kalsi et al., 2022**).

Dragon Fruit

Dragon fruit belong to *Cactaceae* family and *Hylocereus* genus which natives from Central America and Southern Mexico and is now cultivated worldwide. It has a red-green or yellow-green scaly outer layer and red-purple or white colour juicy inner layer embedded with edible black seeds. It is addressed with various other names such as strawberry pear (*Selenicereus spp.* and *Hylocereus spp.*), pitaya, red pitaya, conderella plant, belle of the night, night blooming cereus and kamalam. (**Chandni V Mori et al., 2023**). The crop is gaining more popularity as it requires only little water and its ability to adapt to higher temperature. (**Trivellini et al., 2020**).

Various studies shows that the pulp of *Hylocereus undatus* consists of carbohydrates, glucosides, cardiac glycosides, anthocyanins, phenols, steroids, terpenoids, alkaloids, triterpenoids, saponins, tannins, flavonoids, quinones and coumarins in various solvents. (**Padmavathy K et al., 2021**). The fruit is also rich in various vitamins, fiber, magnesium, calcium, phosphorus, antioxidants such as betalains, ascorbic acid and phytochemicals. Due to the presence of various vitamins and minerals red dragon fruit has anti-diabetic properties, aids in digestion process, lowers blood pressure in turn prevents hypertension and also helps in neutralizing the toxins especially the heavy metals toxins in the body. The phytoalbumin present in the dragon fruits are rich in antioxidants helps in preventing certain types of cancers such as colon cancer and also aids in treating asthma and also cough (**Shekade DP et al., 2018 and Kumar SB et al., 2018**). It also helps in preventing atherosclerosis as the fruit has hypolipidemic and anti-obesity properties (**Suastuti NGMADA et al., 2018**).

Durian Fruit

Durio zibethinus, belonging to Bombacaceae family is native to Southeast Asia and cultivated there for centuries is a tropical fruit. In most of the Western countries this fruit is not available due to its strong sulfury odor making people to feel disgusted but in Southeast Asian countries majorly in China it is considered as “the king of fruits”. There are about 200 varieties of durians and is grown abundantly in Malaysia and can also be found in Indonesia, India, Philippines, Thailand, Madagascar, Sri Lanka, Florida and Hawaii. The pulp of the durian fruit is highly appreciated as it has a creamy sweet mouthfeel. It is consumed either freshly or freeze dried and it is also consumed in the form of beverage and desserts such as cake, jam and candies (**Lisa Striegel et al., 2018 and Ali MM et al., 2020**). Approximately it has 3-5 seeds which is surrounded by the edible custard like flesh which is consumed widely by most people (**Husin et al., 2018**).

The durian fruit consists of anthocyanin, apigenin, gallic acids, lutein, ascorbic acids, tannins, polyphenols, quercetin, flavonols and flavonoids (**A Aziz NA et al., 2019**). Comparatively high amounts of flavonoids, tannins, polyphenols, flavanols and ascorbic acid are found in overripe durians than in the immature durians (**Paško et al., 2019**). Durian varieties from Thailand has more total carotenoid content in comparison with Malaysian varieties. It also has various therapeutic properties such as anti-diabetic and anti-inflammatory properties and also maintains cardiac health (**Sarah Yew Yen Yee., 2021**). Durian is found to be rich in linoleic acid, oleic acid, palmitoleic acid, myristic acid, stearic acid, palmitic acid and carotene such as alpha-carotene and beta-carotene especially in the Monthong and Chani varieties (**Mohd et al., 2020**).

Passion Fruit

Passion fruit with a botanical name *Passiflora edulis* is grown widely in the tropical and subtropical regions (**Ramos L et al., 2018**). The yellow passion fruit species scientifically called *Passiflora edulis f. flavicarpa* is mostly cultivated in Brazil, Ecuador and Peru, the violet passion fruit species scientifically called *P. edulis f. edulis* is mostly cultivated in Colombia and *P. alata*, the sweet passion fruit is mainly cultivated in Brazil. The violet passion fruit is round in shape with a size of about 5cm in diameter and has a weight of 42g - 68g and comparatively has a thinner peel than yellow passion fruit whereas the sweet passion fruit weighs around 192g – 243g with a length 9.6cm and diameter 7.1cm (**Santos, C et al., 2018, Rinaldi, M et al., 2019 and Rodriguez N et al., 2020**).

According to **Biswas S et al (2021)**, approximately 100g of the edible passion fruit consists of 23.38g of carbohydrates, 2.20g of protein, 0.70g of total fat, 10.40g of Dietary fiber, 1274 IU of vitamin A, 14µg of folate, 1.500mg of niacin, 30mg of vitamin C, 12mg of calcium, 348mg of potassium, 1.60mg of iron, 68mg of phosphorus, 29mg of

magnesium, 743µg of beta-carotene, 41µg of beta-crypto-xanthine. The passion fruit possess anti-fungal and anti-bacterial activity against the pathogenic organisms harmful to humans and plants (He X et al., 2020). Since ancient times passion fruit is used to treat various ailments and is used as herbal medicine as it is thought to have antidepressant and anxiolytic properties (Sarris J., 2018 and Da Fonseca et al., 2020). Various pharmacological studies both invitro and invivo shows that passion fruit has various bioactive properties such as anti-diabetic, anti-hypertensive, antimicrobial, antidepressant, sedative and hepato and lung protective properties (Panelli et al., 2018).

Avocado

Avocados (*Persea americana*) is a nutrient dense fruit belongs to *Lauraceae* family. As the species name suggests it is first originated from the America. The shape can be mentioned as pear-shaped, spherical shaped or egg-shaped. It has bumpy and thick out peel layer which might be purplish black when ripe and inside it has smooth, creamy, edible fruit with a large single seed in between (WHO., 2018). The weight of the fruit varies widely from ~220g to ≥ 420g. (Muhammad Afzal et al., 2022).

Approximately, a 50g of the edible part of avocado (~1/3 of a medium sized fruit) consists of 3.4g of dietary fiber, 5g of MUFA (Mono Unsaturated Fatty Acid), 1g of PUFA (Poly Unsaturated Fatty Acid), 4.53g of oleic acid, 44.5µg of folate, 0.73mg of pantothenic acid, 10.5µg of vitamin K, 85µg of copper and 1.6kcal/g of energy (Food data Central., 2019). As the fruit is rich in various nutrients it helps in normal functioning of the body and prevents from various toxic diseases. Folate is the natural form of vitamin B9 is present in the avocado that helps lowers the risk of various cancers such as colon cancer and prostate cancer. Folate stops the increasing level of homocysteine thus prevents from depression. The presence of Vitamin K helps in improving bone health that in turn helps in slowing down the loss of bone mineral density thus prevents the risk of osteoporosis. It has anti-inflammatory properties, aids in the normal digestion due to the presence of high insoluble fibres, maintains blood pressure due to the high levels of potassium in the fruit, presence of lutein and zeaxanthin prevents eyes from UV rays and muscular atrophy (Muhammad Afzal et al., 2022).

CONCLUSION

Among various fruits available in the market these exotic fruits not only have unique texture and flavor but are also rich in various nutrients and possess vivid health benefits due to their therapeutic properties. Including these fruits in the diet helps in the overall wellbeing and upgrades the lifestyle quality of the human population.

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