

Potential Health Benefits of Kiwifruits: The King of Fruits

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Abstract: Fruits are the essential element of the balanced nutritious diet. The kiwifruit (*Actinidai deliciosa*) is originally a native crop of China, hence also known as the Chinese gooseberry. The kiwifruit appears to be of ovoid shape with slightly brown, hairy skin peel and macaque outlook. Kiwi is observed as a comparably minor crop with 0.2% of fruit production. Currently, Italy, New Zealand and Chile are the world's top kiwi producing countries. The kiwifruit is a small fruit that holds replete of flavors and health benefits. It is enriched with a tart sour and sweet flavor with bright green flesh and small edible black seeds. The kiwifruit has been recognized as a rich source of vitamin C and antioxidants. It has already been proven that, the kiwi fruit is an abundant source of potassium, magnesium and vitamin E. Kiwifruit is also known as an Immunity Booster. The kiwis accommodate various health aids and are also used as medication to treat Hair Health, Asthma, Eye and Skin Health, and also Depression. This article provides some information about the kiwi fruit and its various health benefits.

Keywords: Kiwifruits, potential health benefits, king of fruits, immune-boosting fruits, anti-oxidant.

I. Introduction

Kiwis are small fruits that pack a lot of flavor and plenty of health benefits. Their green flesh is sweet and tangy. It's also full of nutrients like vitamin C, vitamin K, vitamin E, folate, and potassium. They also have a lot of antioxidants and are a good source of fiber. Their small black seeds are edible, as is the fuzzy brown peel, though many prefer to peel the kiwi before eating it. Thanks to different growing locations, kiwis can be in season year-round. They're grown in California from November to May, and in New Zealand from June to October. Kiwi can also be found in supplement form.

The basal family within the Ericales, Actinidiaceae, consists of the Actinidia, Saurauia and Clematoclethra genera. The *Actinidia* genus, usually referred to as kiwifruit, includes many horticultural species of economic significance, for example *s Actinidia chinensis* Planchon, *A. deliciosa* (*A. chinensis* var. *deliciosa* A. Chevalier).

It is dioecious deciduous vine fruit tree, which gets its hairy peel and macaque-like outlook from the name **Mihoutao** in China. It is also known as **Hulitao** (meaning fox peach), **Tengli** (meaning cane pear), **Yangtao** (meaning sheep peach in Chinese), Muzi, Maomuguo, Matengguo, and Yangtangli, etc. In the New Zealand region, it is generally called kiwifruit; In the British and American region, Chinese gooseberry; and in Japan, Chinese monkey pears. Together with American avocado, U.S. blueberry, Australian Queensland nut, kiwifruit has been considered in the 20th century as the most successfully domesticated wild fruit tree (**Honghua, 2017**).

Approximately 54 species and 75 taxa have been described in Actinidia³, all of which are perennial, deciduous and dioecious plants with a climbing or straggling growth habit. The kiwifruit species are often reticulate polyploids with a base chromosome number of $x = 29$

Kiwifruit is still a relatively minor crop, making up perhaps 0.2% of the total crop. Total world annual fruit production. The big-fruited kiwifruit of trade selections for *Actinidia chinensis* and *A. deliciosa* two closely related species. Most selections for existing kiwifruit cultivars are from the wild or from seedling populations and just a

few outcomes are from planned hybridizations. Each year, around 1.5-1.6 million tons of kiwifruit are currently grown. Italy (25% of the current global output), New Zealand (20 percent) and Chile (7.5 percent) are the top three. In terms of foreign exchange, major producing countries. Exports from Italy c. 66 per cent of its kiwifruit, at least 94 per cent of New Zealand and Chile c. 88%. Approximately two-thirds of the latest plantings of kiwifruit are in the in the northern hemisphere, and in the southern hemisphere, one third (Ferguson & Seal 2008).

The kiwi fruit centre of origin is in the southwestern China's mountains and ranges. Kiwifruit has got it, starting in the early 20th century, a brief history of domestication when its seeds were added to New Zealand. In, through decades of domestication and substantial selection efforts numerous varieties of wild kiwi fruits have been produced and kiwifruits have become a significant worldwide fresh fruit with 1.44 million tons of annual production in 2011 (Huang, 2013).

Kiwifruit are large, long-lived vines that cause their growth requirements to be demanding. They need strong and costly mechanisms of support. Well-drained soils, as well as a good supply of moisture are required because of their large leaves consume 80-100 litres of water a day. The equivalent of at least 700 mm of rainfall can occur in total during the vegetative period.

Kiwi fruit has long been nicknamed 'the king of fruits' because of its surprisingly high content of vitamin C and balanced nutritional values are composition of minerals, fibre and other health-beneficial minerals. Kiwis are small fruits that contain a great deal of flavor and a great deal of health benefits. Their sweet and tangy flesh is green. It is also full of vitamin C, vitamin K, vitamin E, folate, and potassium nutrients. They also have a great deal of antioxidants and are a good fiber source. Like the fuzzy brown peel, their small black seeds are edible, but many prefer to peel the kiwi prior to consuming it.

1.1 Nutritional Composition of Kiwifruit

As Fruits contain huge dietary sources of antioxidant phytochemicals which are helpful for human health. Actinidia species of fruits contain large amount of vitamin C (Nishiyama *et al.*, 2004). Now a days kiwifruit is very popular fruit because it having high source of vitamin C and also contain flavonoids, vitamin E, minerals (Du *et al.*, 2009). The nutritional value of kiwifruit species is given below

Table 1: Nutritional composition of kiwifruit

Golden kiwifruit (Actinidia Chinensis)		Fuzzy kiwifruit (Actinidia Delicosa)	
Nutritional value per 100 g		Nutritional value per 100 g	
Energy	251 KJ (60 kcal)	Energy	255 KJ (61 Kcal)
protein	1.23 g	protein	1.14 g
Fat	0.56 g	Fat	0.52 g
Carbohydrate	14.23 g	Carbohydrate	14.66 g
sugars	10.98 g	sugars	8.99 g
Dietary fiber	2 g	Dietary fiber	3 g
MINERALS			
Calcium	20 mg	Calcium	34 mg
Phosphorus	29 mg	Phosphorus	34 mg
Sodium	3 mg	Sodium	3 mg

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Magnesium	14 mg	Magnesium	17 mg
Zinc	0.10 mg	Zinc	0.14 mg
Iron	0.29 mg	Iron	0.31 mg
Manganese	0.058 mg	Manganese	0.098 mg
Potassium	316 mg	Potassium	312 mg
VITAMINS			
Vitamin A	114 µg	Vitamin A	122 µg
vitamin B1 (Tiamine)	0.024 mg	vitamin B1 (Tiamine)	0.027 mg
vitamin B2 (Riboflavin)	0.046 mg	vitamin B2 (Riboflavin)	0.025 mg
vitamin B3 (Niacin)	0.28 mg	vitamin B3 (Niacin)	0.341 mg
vitamin B5 (Pantothenic acid)	0.5 mg	vitamin B5 (Pantothenic acid)	0.183 mg
vitamin B6	0.057 mg	vitamin B6	0.063 mg
vitamin B9 (Folate)	34 µg	vitamin B9 (Folate)	25 µg
vitamin C	105.4 mg	vitamin C	92.7 mg
choline	5 mg	choline	7.8 mg
vitamin E	1.49 mg	vitamin E	1.46 mg
vitamin K	5.5 µg	vitamin K	40.3 µg
SOURCE: USDA Nutrient Database			

1.2 Health Benefits of Kiwi Fruit

Kiwi Fruit is one of those fruits which are needed to being the daily diet. The amazing health benefits of kiwi fruits are far beyond dimagination, these lies from heart disease to skin disease.

Kiwi Fruit is worth eating, as the entire fruit after removing the skin is edible even the seeds.

Several worth mentioning health and nutritional benefits of kiwi fruit are

- ***Kiwi Fruit in Hair Health***

The omega3 fatty acid present in the kiwi fruit helps retain the moisture of the hair and prevent moisture loss. The constant blood circulation in the scalp is aided by the iron content of the fruit. The premature graying of hair is inhibited by the Presence of copper in kiwi fruit. Ascorbic acid (Vitamin C) of this fruit retards the rate of hair fall and prevents baldness. Zinc, magnesium, and phosphorus are found to be helpful in hair growth and increased blood circulation and these minerals are available in a good percentage in this fruit (Tyagi et al., 2015).

- ***Kiwi Fruit in Cancer***

Cancer is initiated by a mutation of genes and surprisingly kiwi fruit have an antimutagenic component and glutathione, these are responsible for the inhibition of genetic mutation. Kiwi Fruit has a digestive compound which is having more rapid action than dietary fiber and this compound is accountable for the prevention of colorectal cancer (Lal *et al.*, 2010).

- **Kiwi Fruit as Antioxidant**

Kiwi Fruit is a natural antioxidant therefore it prevents the oxidation of good cholesterol (HDLs).

- **Kiwi Fruit as immunity booster**

Beta carotene(Vitamin A), Ascorbic Acid(Vitamin C),Vitamin E, copper are some of the key minerals required for a better building and development of the immune system and kiwi fruit have all these constituent in a good amount, also the iron content of kiwi fruit helps build a good immune system.

- **Kiwi Fruit in Heart functioning**

Kiwi fruit is found to have an *anti-platelets* factor which prevents over functioning of platelets as it is one of the reasons for various cardiovascular diseases. So anti- platelets factor of kiwi fruit modifies platelet activity to avoid cardiovascular diseases. Due to the rich content of arginine and glutamate *amino acids* it has several other health benefits too as arginine helps in improving blood flow because it acts in vasodilatation; it also helps in blood clot reduction, fat Percentage reduction in blood. Due to low sodium concentration and high potassium Concentration in kiwi fruit the risk of cardiovascular disease is low. Also the high fiber content of kiwi fruit helps reduce Cholesterol level of blood and prevents heart disease. The other components of kiwi fruit like omega 3 fatty Acid, folate, magnesium, and vitamin E has potential effect in reducing Coronary disease.

- **Kiwi Fruit in Eye health**

The richness of kiwi fruit in Lutein, a carotenoid vitamin found in retina of eye which needs to be externally consumed helps prevent age related blindness.

- **Kiwi Fruit in skin health**

The role of kiwi fruit in healthy skin is worth mentioning here as, the presence of Vitamin C, Vitamin E, amino acid makes the skin healthy because Vitamin C acts as antioxidant and prevent damage caused on skin by sun, pollution, smoke and keeps skin young. Vitamin C is also responsible for formation of collagen which is a connective protein and helps in the repairing skin. Vitamin E of kiwi fruit makes skin soft, moist and protect skin from regeneration, also the antioxidant and along with this Vitamin E helps the skin to glow. The amino acid of kiwi fruit protects the skin from sun damage.

- **Kiwi Fruit in Depression**

Kiwi Fruit can be seen as a good anti-depressant because of Inositol present in it, this inositol acts as precursor of intracellular secondary messenger system and this helps in releasing the happy hormone called serotonin for reducing stress and depression. Also due to low sodium to potassium ratio in kiwi fruit, it acts positively in hyper tension to produce calm effect.

- **Kiwi Fruit in Physical Fitness and Weight loss**

Kiwi Fruit because of its high amount of electrolytes acts as a pretty good workout meal because it replenishes those minerals which are lost during exercise and heavy work out. Kiwi Fruit have excellent balance of nutrient per calorie and because of this kiwi fruits helps in weight loss promotion.

- **Kiwi Fruit in Pregnant Women's Health**

Folate (Vitamin B6) is considered to be beneficial for the development of foetus and making them healthy in pregnant women and this Folate is found in appreciable amount in Kiwi Fruit.

- **Kiwi Fruit in Blood Clotting and Absorption of Vitamin D**

Vitamin K content of Kiwi Fruit is accountable for promoting blood clotting and also for the absorption of Calciferol (Vitamin D).

- **Kiwi Fruit in Anemia**

The iron absorption of kiwi fruit increases hemoglobin content and inhibit the scope of anemia.

- **Kiwi Fruit in Kidney Stone**

The Potassium and Magnesium content of Kiwi Fruit is better in reducing the chance of Kidney Stone formation.

- **Kiwi Fruit in Better Sleep**

The happy hormone serotonin secreted by kiwi fruit helps to get a sound sleep.

- **Kiwi Fruit in Blood Pressure**

High potassium intake can results into normal blood pressure and kiwi fruit helps to do so.

- **Anti-microbial action of Kiwi Fruit**

Anti-HIV activity of methanol fraction isolated has been observed from a gold kiwi fruit (Singletary, 2012).

- **Kiwi Fruit in Digestive Health**

Kiwi Fruit has proteolytic enzyme called actinidin, which is a protein dissolving enzyme and improve protein digestion and also help in digestion of meal like papin, bromelain for smooth traffic in digestive tract. The fiber content of kiwi fruit also helps in enhancing this result by its actions (**Richardson et al., 2018**).

- **Kiwi Fruit in Bone Health**

Variable Composition of Folate, magnesium and Vitamin Ein Kiwi fruit helps in Bone formation and Vitamin K have significant role in bone mass building by enhancing Osteotrophic activity in the bone.

1.4 Kiwi fruit can cure various ailments such as

- **Can assist in asthma care**

It is known that the high amount of vitamin C and antioxidants found in kiwis will potentially help treat asthma sufferers.

- **Helps in digestion**

Kiwis have tons of fibre, which is ideal for digestion right now. They also contain a proteolytic enzyme that can help break down protein called actinidin. Kiwi extract containing actinidin significantly improved the digestion of most proteins.

- **Skin health**

Vitamin C contributes to the development of collagen, which is a key component in cells and tissues, including the skin, in the body. The vitamin also improves the ability of the body to heal wounds.

- **Throughout pregnancy**

Kiwifruit contains folate, which is important for the division of cells. Doctors encourage women to take extra folate during pregnancy, as it may protect the fetus from developmental issues, such as neural tube defects.

Some Other benefits of kiwi fruit includes:

- Childrens suffering from asthma may be given kiwi fruit for enhanced positive effect.
- Nerve Functioning and metabolism gets improved on Kiwi Fruit consumption.
- Kiwi Fruit Consumption maintains the osmotic balance of the body.
- The Richness of Kiwi Fruit in Phytochemicals(Xanthophylls,Luteins,Beta carotene); Phenolic Compounds(Flavonoids and anthocyanins); and Antioxidants, Vitamin C and Vitamin E; and other body essentials have made this Fruit a Essential Requirement of daily diet.

II. Conclusion

The present study was undertaken to analyze and discuss the kiwifruit origination, adaptability along with its high nutritional and medicinal value. From the above study it can concluded that the kiwifruit shows a wealthy effect on health with the presence of ascorbic acid, anthocyanin and antioxidants. Since it is observed that the fruit is a minor crop with about 1.5 million tons of annual production, fruit is rather one of the extravagant or lavish fruits. Therefore it is consumed comparatively less. Also the kiwifruit carries a tangy and sweet flavor which may not be preferred by many. The kiwifruit has been perceived as a source of nutritive elements like energy, magnesium, folate, vitamin K, phenolic compounds. Kiwifruit is used in medical industry for their physiological effectiveness such as in Bone Health, Digestive Health, Blood Pressure, Anti Microbial action etc. It also helps in improving the metabolic rate and nerve functioning. For our well being we need to be conscious about the elements we intake and maintain the consumption of nutritious fibers. If we tend to actively engage in few quick and east to imitate and initiate balanced dietary plans along with certain changes in our lifestyles then, we can surely bring a stable and non venturous future for the next centuries.

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