

Mulberry Assorted

Morus rubra, *Morus alba*, *Morus nigra*

(a) *Morus rubra* - red mulberry



Female flowers

(b) *Morus alba* - white mulberry



Male flowers

(c) *Morus nigra* - black mulberry



Female flower

Common names	Silkworm Mulberry, Chi Sang, Chin Sang,
Origin	The black mulberry is native to Southeast Asia, the red mulberry to eastern North America and the white mulberry to East Asia. The mulberries belong to Moraceae family.
Description	The leaves of the white and black mulberry have been used for centuries to feed silkworm moth larva until it is mature enough to spin itself into a cocoon. The fruit of the mulberry tree that looks like miniature catkins that have many health benefits.
Growth Habitat	Temperate climates ranging from tropical to subtropical and where changes in temperature are moderate and not extreme.
Foliage	The leaves are alternately arranged, simple, often lobed, more often lobed on juvenile shoots than on mature trees, and serrated on the margin.
Flowers	Mulberry flowers are produced in a catkin, with male and female catkins on different trees though sometimes maybe on the same tree. Male flowers have four stamens while female flowers consist of single pistil tightly enveloped by

	four inconspicuous sepals. Each ovary (carpel) of the female catkin becomes a drupelet and the ripened cluster of drupelets (called a syncarp) is called a multiple fruit.
Fruits	The mulberry fruit is a multiple fruit, 2-3 cm long. In many species, the immature fruits are white, green, or pale yellow that turn pink to red then dark purple or black and have a sweet flavor when fully ripe. The fruits of the white-fruited cultivar are white when ripe; the fruit is also sweet but has a very mild flavor compared to the darker variety.
Soil	It grows well on a wide variety of soils, but prefers a moist, well-drained soil with lots of sun.
Pruning	No special pruning techniques are needed after the branches have been trained to a sturdy framework, except to remove dead or overcrowded wood. Cuts of more than 5 cm in diameter generally do not heal and should be avoided at all costs.
Fertilization	An annual application of a balanced fertilizer such as NPK 10:10:10 should be sufficient.
Propagation	Mulberries can be grown from seed, although the plants can take 10 years or more to bear. Sprig budding is the most common method for grafting mulberries.
Harvest	The fruits of white mulberries are often harvested by spreading a sheet on the ground and shaking the branches. Black mulberry fruits often need to be handpicked but be cautious, the juice of crushed fruits can stain hands and clothing. Unwashed berries will keep several days in a refrigerator in a covered container.
Nutritional Properties	Mulberries are actually a good source of raw food protein that is rare among fruits. They are also a good source of magnesium, potassium, riboflavin, iron, calcium, vitamin C, and fibre. And they also have a high concentration of

	<p>resveratrol, an antioxidant that may help prevent heart disease.</p>
<p>Health Benefits</p>	<ul style="list-style-type: none"> • Delicious, fleshy, succulent mulberries are low in calories (just 43 calories per 100 g). They contain health promoting phyto-nutrient compounds like polyphenol pigment antioxidants, minerals and vitamins that are essential for optimum health. • Mulberries have significantly high amounts of phenolic flavonoid phytochemicals called anthocyanins. Scientific studies have shown that consumption of berries have potential health effects against cancer, aging and neurological diseases, inflammation, diabetes, and bacterial infections. • The berries contain resveratrol and also the bark stem, another polyphenol flavonoid antioxidant. Resveratrol protects against stroke risk by altering molecular mechanisms in the blood vessels; reducing their susceptibility to damage through decreased activity of angiotensin (a systemic hormone causing blood vessel constriction that would elevate blood pressure) and increased production of the vasodilator hormone, nitric oxide. • In addition, these berries are an excellent source of vitamin-C (36.4 mg per 100, about 61% of RDI), which is also a powerful natural antioxidant. Consumption of foods rich in vitamin-C helps the body develop resistance against infectious agents, counter inflammation and scavenge harmful free radicals. • Further, the berries also contain small amounts of vitamin A, vitamin E and in addition to the above-mentioned antioxidants. Consumption of mulberry provides another group of health promoting flavonoid polyphenolic antioxidants such as lutein, zeaxanthin,

β -carotene and α -carotene in small but notably significant amounts. Altogether, these compounds help act as protect from harmful effects of oxygen-derived free radicals and reactive oxygen species (ROS) that play a role in aging and various disease processes.

- Zea-xanthin, an important dietary carotenoid selectively concentrates into the retinal macula lutea, where it thought to provide antioxidant functions and protects the retina from the harmful ultraviolet rays through light-filtering actions.
- Mulberries are an excellent source of iron, which is a rare feature among berries, they contain 1.85 mg/100 g of fruits (about 23% of RDI). Iron, being a component of hemoglobin inside the red blood cells, determines the oxygen-carrying capacity of the blood.
- They also good source of minerals like potassium, manganese, and magnesium. Potassium is an important component of cell and body fluids that helps controlling heart rate and blood pressure. Manganese is used by the body as a co-factor for the antioxidant enzyme, superoxide dismutase.
- They are rich in B-complex group of vitamins and vitamin K. Contain very good amounts of vitamin B-6, niacin, riboflavin and folic acid. These vitamins are function as co-factors and help body in the metabolism of carbohydrates, proteins and fats.

Commercial Uses	<p>The ripe fruit is edible and is widely used in pies, tarts, wines, cordials and tea. The fruit and leaves are used in nutritional supplements. Unripe fruit and green parts of the plant have a white sap that may be toxic, stimulating, or mildly hallucinogenic. It was commonly used in folk medicine for treatment of ringworm. The tree branches are used to make durable baskets supporting agriculture and animal husbandry.</p>
Food Suggestion	<p>Wild Mulberry & Celery Smoothie Recipe</p> <ul style="list-style-type: none">• 1 cup wild mulberries• 1 banana• 1/2 cup pineapple, chopped (again, lessen or leave out for less sugar)• 1 cup nut or seed milk (hemp, almond, coconut milk, etc.)• 3-4 stalks of celery <p>Blend until smooth and enjoy!</p>